28-29 and page 3, lines 30-35. Claim 1 was additionally amended to correct a spelling error. Accordingly, no new matter has been added.

INTERVIEW

The undersigned would like to thank the Examiner for the courtesies extended during the telephonic interview held on August 8, 2002. During the interview, a proposed amendment to claim 1 distinguishing the present invention over U.S. Patent No. 5,586,479 (Roy *et al.*) based on the recitation of new limitations directed to the spacing between the first and second sensors and cutting without guides for edge registration of the substrate were discussed. Although no agreement was reached regarding the patentability of claim 1 so amended, the foregoing amendment to claim 1 is consistent with the discussion held during the interview.

Claim Objections

The Examiner objected to claims 1, 2, and 8 because of the following formalities: in claim 1, line 18, "microprocessor" is misspelled. Applicant has amended claim 1 to correct the misspelling. Accordingly, Applicant respectfully requests that the objection to claims 1, 2, and 8 be withdrawn.

Claim Rejections – 35 U.S.C. §103

The Examiner has rejected claims 1, 2 and 8 under 35 U.S.C. §103(a) as being unpatentable over Roy *et al.* The Examiner contends that Roy *et al.* discloses a cutting device with almost every structural limitation of the claimed invention including a first pair of rollers (e.g., 56, 62) which are coupled and thus driven together by a first motor; a cutting assembly (e.g., 60) which is driven by a second motor; a third motor (e.g., 84) pivoting one of the cutting assembly and the pair of rollers; a reading system having first (e.g., 58A) and second (e.g., 58B) spaced apart optical sensors; and a micro-processor (e.g., 30) which recognizes marks on the workpiece.

The Examiner admits that Roy *et al.* lacks a microprocessor having stored therein a preset sequence of marks corresponding to the feature of the boundary marks, specifically the preset sequence of white and black lines oriented at right angles to the workpiece feed direction.

However, the Examiner takes Official Notice that such marking is old and well known in the art for various benefits including providing automatic triggering of various different operations during a processing of a workpiece. The Examiner opines that it would have been obvious to an artisan to provide markings of a workpiece and to program the microprocessor of Roy *et al.* to read such markings for the various known benefits including that described above.

The Examiner also contends, in the alternative, if it is argued that Roy *et al.* does not explicitly disclose a first motor and a second motor, the Examiner takes Official Notice that such a configuration is old and well known in the art and therefore would have been obvious to one having ordinary skill in the art to provide a first and second motor of the present invention. Applicant respectfully traverses this rejection.

Claim 1 as amended recites, *inter alia*,

> a cutting assembly . . . having a cutting width . . .
>
> a reading system having first and second spaced apart optical sensors (4, 4) that detect one of the boundary marks (M) between the images, the second sensor spaced from the first sensor a distance equal to a fraction of the cutting width . . .
>
> wherein the device is able to perform the cutting in two mutually orthogonal directions upon rotation of the substrate (1) through 90° without guides for edge registration of the substrate.

Applicant has amended claim 1 to more particularly point out and claim that the second sensor is spaced from the first sensor a distance equal to a fraction of the cutting width. Support for this amendment can be found in the specification on page 3, lines 32-35, wherein the specification discloses,

> the distance between the two sensors or cells 4, 4 is preferably equal to 1/10 of the substrate width, whereby a device suitable for a sheet of 82 cm of maximum width will have a distance between the cells of about 8 cm.

Claim 1 has been further amended to more particularly point out and claim that the automatic device for trimming and cutting performs the cutting of the substrate without guides for edge registration of the substrate and that cutting can be performed in two mutually

orthogonal directions upon rotation of the substrate through 90°. Support for this amendment can be found in the specification on page 2, lines 28-29, wherein the specification discloses

> In fact, an important advantage of the present invention is that it can perform the cutting of substrates both in reels and in sheets, even without any guiding system.

The specification also teaches on pate 6, lines 1-4 the following,

> the single copies can be divided by recognizing and cutting the marks first in one direction and then in the other direction, after having rotated the substrate through 90°

Roy *et al.* teaches a cutting apparatus 26 that is optimized for productivity for a single large size sheet 75, for example, 13 inches by 19 inches. (See Col. 3, ln 25-29) The sheet 75 is transported in a "Y" direction by rollers 54 and 56 and is edge registered against guide member 55 by rollers 54. (See Col. 4, ln 40-42) The cutting apparatus 26 has a first sensing device 58A and a second sensing device 58B for detecting the leading edge of the skewed image. The first and second sensors 58A, 58B are positioned proximal to the edges of the sheet 75 as shown in Fig. 3. To determine the skew angle of the image, Roy *et al.* requires that the sheet 75 be edge registered and be moving at a velocity Y in the Y direction (perpendicular to the rotational axis of the rollers 56 and 62. (See Col. 5, ln 19-21) Roy *et al.* teaches determination of the skew angle as follows

> The time difference between when sensor 58A detects an image's lead edge and when sensor 58B detects an image's edge is determined by logic/control 30. This time difference is then multiplied by velocity Y to obtain a skew ratio. By determining the inverse tangent of the skew ratio, a skew angle is determined. . . . The skew angle represents the angle that cutter 60 is moved in order to align the cutter with the lead edges of the images. . . .After the cut is made the cut receiving sheet is further transported in the Y direction by roller 56 and roller 62 which are preferably coupled. Cutter 60 is then actuated to cut the trail edge of the images. The trail edge cut is timed according to the velocity of the receiving sheet and the Y dimension of the image. The lead edge of the cut receiving sheet is edge registered against a member 64 and the cut receiving sheet is transported in a direction X by rollers 66, 68 and 69. . . . Cutter 72 is perpendicular to member 64 and therefore will not need to have its position adjusted, as with cutter 60, in order to be aligned with lead edge 71. . .

(See Col. 5, ln 21-59)

Roy *et al.* does not disclose each and every element of the present invention and is an entirely different device from the present invention.

Roy *et al.* does not disclose first and second spaced apart optical sensors, the second sensor spaced from the first sensor a distance equal to a fraction of the cutting width. Instead, Roy *et al.* teaches a cutting apparatus having first and second sensors 58A, 58B positioned proximal to the edges of the sheet 75. Further, Roy *et al.* does not disclose a cutting apparatus that is able to perform the cutting of a various size substrates in two mutually orthogonal directions upon rotation of the substrate (1) through 90° without guides for edge registration of the substrate. To the contrary, Roy *et al.* teaches a cutting apparatus that is optimized for a single large size sheet 75 and requires that the sheet 75 be edge registered. The Roy *et al.* device does not teach cutting a trailing edge cut based on the optical sensing of a trailing edge. Rather, the trail edge cut is timed according to the velocity of the receiving sheet and the Y dimension of the image. Still further, Roy *et al.* does not teach rotation of the substrate through 90°. Rather, Roy *et al.* discloses a first cutter 60 that is oriented perpendicular to a second cutter 72 and a change of direction of travel of the sheet 75 rather than a rotation to provide orthogonal cuts.

Consequently, Roy *et al.* does not teach a trimming and cutting device having a first optical sensor and a second optical sensor spaced from the first sensor a distance equal to a fraction of the cutting width. Roy *et al.* also does not teach a trimming and cutting apparatus that is able to perform the cutting of various size substrates in two mutually orthogonal directions upon rotation of the substrate (1) through 90° without guides for edge registration of the substrate. Furthermore, there is no objective teaching in Roy *et al.* that would enable one of ordinary skill in the art to modify the Roy *et al.* device in a manner that would render the present invention obvious under 35 U.S.C. § 103(a).

Accordingly, Applicant respectfully submits that Roy *et al.* does not disclose each and every element of the present invention and does not provide an objective teaching that would render the present invention obvious. Therefore, Applicant respectfully requests that the rejection of claims 1 and 2 be withdrawn.

The Examiner has rejected claim 8 under 35 U.S.C. §103(a) as being unpatentable over Roy *et al.* The Examiner admits that Roy *et al.* lacks the cutting assembly having first and second parallel spaced apart blades. The Examiner takes official notice that such a cutter configuration is old and well known in the art and that it would have been obvious to one of ordinary skill in the art to provide to provide first and second parallel spaced apart blades in the present invention. Applicant respectfully traverses this rejection.

In view of the above discussion regarding amended claim 1, even if the Roy *et al.* cutting apparatus were modified to include first and second parallel spaced apart blades, claim 8, depending from claim 1 is patentably distinguishable over the combination. Accordingly, Applicant respectfully requests that the rejection of claim 8 be withdrawn.

CONCLUSION

In view of the foregoing amendment and remarks, Applicant respectfully submits that the present application, including claims 1, 2 and 8, is in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

Valter Maddalon

August 12, 2002 By: Richard A. Woldin

(Date)

RICHARD A. WOLDIN
Registration No. **39,879**
AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P.
One Commerce Square
2005 Market Street - 22nd Floor
Philadelphia, PA 19103-7086
Telephone: (215) 965-1200
Facsimile: (215) 965-1210
Direct Dial: (215) 965-1296
E-Mail: rwoldin@akingump.com

RAW/lcd

COPY OF PAPERS
ORIGINALLY FILED

MARKED-UP VERSION OF AMENDED CLAIM

1. (Four Times Amended) An automatic device for trimming and cutting at right angles paper and other graphic and photographic substrates (1) with a series of images (10) printed thereon and marked by boundary marks (M) having a feature comprising a preset sequence of white and black lines extending at least along a whole edge of each of said images (10) oriented at right angles to a feed direction of the substrate, the automatic device comprising:

at least a pair of rollers (2) for feeding the substrate;

a first motor (3) driving the pair of rollers;

a cutting assembly (7) spaced apart from the pair of rollers, the cutting assembly having a cutting width;

a second motor (9) driving the cutting assembly to cut;

a third motor (5) pivoting one of the cutting assembly and the pair of rollers from time to time to align said cutting assembly (7) and one of said boundary marks (M);

a reading system having first and second spaced apart optical sensors (4, 4') that detect one of the boundary marks (M) between the images, the second sensor spaced from the first sensor a distance equal to a fraction of the cutting width; and

a microprocessor (12) in communication with said reading system and the second motor (9) and the third motor (5), the [microporcessor] microprocessor having stored therein a preset sequence of marks corresponding to the feature of the boundary marks (M), the microprocessor (12) processing a signal from the reading system, recognizing the feature of the boundary marks (M) and controlling the second and third motors (9, 5),

wherein the device is able to perform the cutting in two mutually orthogonal directions upon rotation of the substrate (1) through 90° without guides for edge registration of the substrate.